

## H09: NON-PETROLEUM FUEL PRODUCTS

★TAIY- H09 2002-591878/64 ★CN 1354219-A  
Coke-receiving, core-quenching and coke-discharging equipment for horizontal coke-oven

TAIYUAN HEAVY DUTY MACHINERY COLLEGE  
2001.12.27 2001CN-131671  
M24 (2002.06.19) C10B 33/02, C10B 39/00

**Novelty:** Equipment for receiving coke, quenching coke and discharging coke in a horizontal coke-oven can be moved to close up to the over door, and can be transversely moved to a coke-discharging position to turn over and discharge material. When it is used for receiving coke, the bottom surface of coke-oven and coke-receiving tank are smoothly engaged without leakage. When it is used for discharging coke its automatic turnover operation is reliable.

**Advantage:** Compared with existent equipment, the equipment has a reasonable structure, low cost and reduced floor area.

C2002-167582

★UYCH- H09 2002-591879/64 ★CN 1354220-A

Composite biomass gasification furnace

UNIV CHINESE SCI & TECHNOLOGY 2000.11.22 2000CN-133263  
(2002.06.19) C10B 53/02

**Novelty:** Equipment for treating discards of crops comprises a biomass retort set near a down-draft gasification fixed bed furnace. The gas outlet of the gasification furnace is connected with the inlet of the retort by a connecting pipeline. The retort is formed from a furnace body, grate, inlet, outlet and ash-discharging hole. The furnace cavity can be divided into an upper furnace cavity and a lower furnace cavity by the grate, and the volume of the upper furnace cavity is 1-5 times that of the lower furnace cavity.

**Advantage:** The furnace fully utilizes waste heat of high-temperature gas produced by the gasification furnace to pyrolyze and destructively distill the discards of crops in the retort, and adsorbs and removes tar in the gas so as to further reduce the tar content and improve the heat energy conversion efficiency and gas heat value.

C2002-167583

★ZHUF/ H09 2002-591883/64 ★CN 1354228-A

Fuel powder paste coal production

ZHU F 2001.12.18 2001CN-144454  
(2002.06.19) C10L 1/32

**Novelty:** Fuel-powdered paste coal production comprises a wet process to grind coal and liquid medium according to a specific proportion or a dry process to grind coal to obtain coal powder, mixing the coal powder with a liquid medium to obtain an aqueous coal paste, and mixing the aqueous coal paste with straw powdered granules according to a specific proportion to give a solid fuel.

**Advantage:** The combustion efficiency is improved and smoke and sulfur dioxide pollution are reduced. Straw is used as a raw material for producing an environment-protecting energy-saving fuel.

C2002-167587

★WANG/ H09 2002-591884/64 ★CN 1354229-A

Sulfur coal clean combustion improver

WANG Z 2000.11.20 2000CN-132450  
(2002.06.19) C10L 9/10

**Novelty:** A high-sulfur coal clean combustion adjuvant comprises ferrocene, potassium permanganate, manganese dioxide, iron oxide, magnesium silicate, aluminum oxide and sodium chloride.

**Advantage:** The combustion improver highly effectively fixes sulfur, reduces smoke discharge, improves combustion property, gives safe coal and reduces consumption, and is applicable to various furnaces, e.g. powdered coal furnaces, boiling kilns, grate-fired furnaces and spreader-storer-fired furnaces.

C2002-167588

★DALI- H09 2002-591885/64 ★CN 1354230-A

Natural mineral fuel coal sulfur-fixing agent

DALIAN CHEM. & PHYSICAL INST CHINESE ACAD  
2000.11.22 2000CN-123288  
(2002.06.19) C10L 10/04

**Novelty:** A natural mineral coal-burning sulfur-fixing agent comprises limestone ore. Its adjuvant is selected from one or more minerals, i.e. haematite, magnesite, iron alumina, kaolin, sandstone, shale, olivine, clay, waste iron powder and non-metal mineral. The adjuvant content is controlled in the range of 3-10 wt.%.

**Advantage:** Good catalytic sulfur-fixing effect is obtained.  
C2002-167589

★COAL- H09 2002-591965/64 ★CN 1355275-A

Water-coal slurry production for use as fuel

COAL WASHING PLANT DONGPANG MINE JINNIU  
2000.11.28 2000CN-133392  
(2002.06.26) C10L 1/32

**Novelty:** The production of a water-coal slurry for use as a fuel includes mixing flotation and filtered fine coal, flotation and pressure-filtered fine coal, and centrifugal separated powdered fine coal, adding disperser, stirring, ball grinding, adding a stabilizer, stirring, filtering, colloid milling and homogenizing.

**Advantage:** The product contains 66-70% powdered coal.

C2002-167625

★ZHOU/ H09 2002-591968/64 ★CN 1355278-A

Composite adhesive for industrial briquettes

ZHOU G 2000.12.01 2000CN-134771  
(2002.06.26) C10L 5/10

**Novelty:** A composite adhesive for industrial briquettes is a composite multi-element polymer prepared from inorganic and organic raw chemical raw materials.

**Use:** Used for suitable for soft coal, anthracite, coke dust and peat.

**Advantage:** The composite adhesive requires low investment, is low cost, has high strength, high heat value and thermal stability up to 90%, and natural solidification or baking with surplus heat.

C2002-167628

★EBUE- H09 2002-591994/64 ★DE 10057116-A1

Production of hydrogen from biological waste, sewage sludge or other carbonaceous material

EBU GMBH ENERGIEBUERO UMWELTTECHNOLOGIE  
2000.11.16 2000DE-1057116  
D15 E36 F09 (2002.06.20) C01B 3/02

**Novelty:** Production of hydrogen from carbonaceous material involves drying, gasifying; cooling and scrubbing; condensing out carbon monoxide and methane; withdrawing an H<sub>2</sub>-rich product gas; expanding the condensate in a heat exchanger to produce a lean gas; and burning the lean gas to generate high-pressure steam for operating a turbine.

**Detailed Description:** Production of hydrogen (H<sub>2</sub>) from biological waste, sewage sludge or other carbonaceous material involves drying the material with waste heat from the process; gasifying the material in a reformer (2); cooling (3) and scrubbing (4) the gas to remove impurities (e.g. tar, furans, sulfur compounds and dust); recycling part of the gas to the reformer; passing the rest of the gas to a carbon dioxide (CO<sub>2</sub>) absorber (5); condensing out carbon monoxide (CO) and methane (CH<sub>4</sub>) in an H<sub>2</sub> enrichment step (6) using electricity generated within the process; withdrawing an H<sub>2</sub>-rich product gas; expanding the condensate in a heat exchanger to produce a lean gas; and burning the lean gas and off-gas from the reformer in a boiler (7) to generate high-pressure steam for operating a turbine (8).

**Use:** The hydrogen can be used as a fuel or to produce hydrogen peroxide for use as a bleaching agent in papermaking.

**Description of Drawing(s):** The drawing shows a flow diagram for the process. (Drawing includes non-English language text).

Reformer 2

Cooler 3

Scrubber 4

CO<sub>2</sub> absorber 5

H<sub>2</sub> enrichment 6

Boiler 7